



## INTERNATIONAL COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/10067	International filing date (day/month/year) 10.09.2003	Priority date (day/month/year) 11.09.2002
International Patent Classification (IPC) or both national classification and IPC C08G59/18, C08G59/18		
Applicant SCHILL + SEILACHER AKTIENGESELLSCHAFT et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand  15.03.2004	Date of completion of this report  21.04.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Telephone No. +49 89 2399- 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/10067**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-9 as originally filed

**Claims, Numbers**

1-23 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-23
	No: Claims	
Inventive step (IS)	Yes: Claims	1-23
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-23
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/EP 03/10067

**Concerning point V:**

**Novelty:**

D1 US6441067 discloses phosphorus containing compounds as flame retardants. The compounds are not issued from the reaction with an aldehyde or ketone and then with a diamino or polyamino compound (step B). The structure of the products are different in D1 and in the application.

D2 DE1154624 and D3 US20010014706 disclose the reaction of a phosphorus containing compound (flame retardant) and an amine curative without reaction with an aldehyde or ketone. The phosphorus atom is directly bound to the amine atom of the curative. The structure of the products does not match those of the application (D2 parts by weight-N bond; salt in D3).

The subject-matter of claims 1 and dependent claims 2-13; claims 14-20 (use) and 21-23 (epoxy composition) is novel over D1-D3.

**Inventive step:**

D3 discloses the reaction between a phosphorus containing flame retardant and an amine curative and its use in epoxy compositions. D3 is the closest prior art document. No aldehyde or ketone is reacted with the phosphorus containing compound in the first step, as a result, the products obtained are i) not cyclic and ii) salts of quaternary amines (see page 10 Diagrams 1-3).

Both D3 and the application disclose curing agents being the association of an amine curative and a phosphorus containing flame retardant.

The objective technical problem is then to provide alternative curing agents possessing flame retardant properties.

The solution of the application is to provide compounds in which the amine curative is covalently bound to the phosphorus containing compound.

There is no incentive in the prior art documents that these alternative compounds might be used successfully as curative and flame retardant.

The subject-matter of claims 1 and dependent claims 2-13; claims 14-20 (use) and 21-23 (epoxy composition) is inventive over D1-D3.